

LUBRICATION AND MAINTENANCE

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LUBRICANTS AND CAPACITIES

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SERVICE PROCEDURES

DESCRIPTION

Service and maintenance procedures for components and systems listed in Schedule "A" or "B" can be found by using the Group Tab Locator index at the front of this manual. If it is not clear which group contains the information needed, refer to the index at the back of this manual.

There are two maintenance schedules that show proper service based on the conditions that the vehicle is subjected to.

Schedule "A", lists scheduled maintenance to be performed when the vehicle is used for general transportation.

Schedule "B", lists maintenance intervals for vehicles that are operated under the conditions listed at the beginning of that schedule section.

Use the schedule that best describes the driving conditions.

Where time and mileage are listed, follow the interval that occurs first.

PARTS AND LUBRICANT RECOMMENDATIONS








RECOMMENDATIONS

When service is required, DaimlerChrysler Corporation recommends that only Mopar® brand parts, lubricants and chemicals be used. Mopar provides

the best engineered products for servicing DaimlerChrysler Corporation vehicles.

INTERNATIONAL SYMBOLS

DaimlerChrysler Corporation uses international symbols to identify engine compartment lubricant and fluid inspection and fill locations (Fig. 1).

 CHRYSLER CORPORATION			
	ENGINE OIL		BRAKE FLUID
	AUTOMATIC TRANSMISSION FLUID		POWER STEERING FLUID
	ENGINE COOLANT		WINDSHIELD WASHER FLUID

9500-1

Fig. 1 International Symbols

CLASSIFICATION OF LUBRICANTS

Only lubricants bearing designations defined by the following organization should be used to service a DaimlerChrysler Corporation vehicle.

- Society of Automotive Engineers (SAE)
- American Petroleum Institute (API) (Fig. 2)

SERVICE PROCEDURES (Continued)

- National Lubricating Grease Institute (NLGI) (Fig. 3)

ENGINE OIL

SAE VISCOSITY RATING INDICATES ENGINE OIL VISCOSITY

An SAE viscosity grade is used to specify the viscosity of engine oil. SAE 30 specifies a single viscosity engine oil. Engine oils also have multiple viscosities. These are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range.

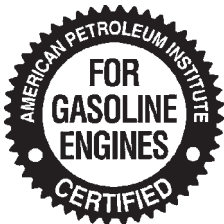
- SAE 30 = single grade engine oil.
- SAE 10W-30 = multiple grade engine oil.

DaimlerChrysler Corporation only recommends multiple grade engine oils.

API QUALITY CLASSIFICATION

This symbol (Fig. 2) on the front of an oil container means that the oil has been certified by the American Petroleum Institute (API) to meet all the lubrication requirements specified by DaimlerChrysler Corporation.

Refer to Group 9, Engine for gasoline engine oil specification.



9400-9

Fig. 2 API Symbol

GEAR LUBRICANTS

SAE ratings also apply to multiple grade gear lubricants. In addition, API classification defines the lubricants usage.

LUBRICANTS AND GREASES

Lubricating grease is rated for quality and usage by the NLGI. All approved products have the NLGI symbol (Fig. 3) on the label. At the bottom NLGI symbol is the usage and quality identification letters. Wheel bearing lubricant is identified by the letter “G”. Chassis lubricant is identified by the latter “L”. The letter following the usage letter indicates the quality of the lubricant. The following symbols indicate the highest quality.

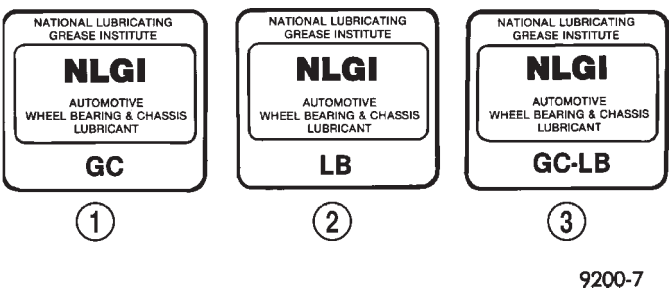


Fig. 3 NLGI Symbol

- 1 – WHEEL BEARINGS
- 2 – CHASSIS LUBRICATION
- 3 – CHASSIS AND WHEEL BEARINGS

SPECIALIZED LUBRICANTS AND OILS

Some maintenance or repair procedures may require the use of specialized lubricants or oils. Consult the appropriate sections in this manual for the correct application of these lubricants.

FLUID CAPACITIES

Fuel Tank

Standard	57 L (15 gal.)
Optional	83 L (22 gal.)

Engine Oil W/Filter change

2.5L	4.3 L (4.5 qts.)
3.9L	4.3 L (4.5 qts.)
4.7L	5.7L (6.0 qts.)
5.9L	4.7 L (5.0 qts.)

Cooling System

2.5L	9.3 L (9.8 qts.)
3.9L	13.2 L (14.0 qts.)
4.7L	16.0 L (17.0 qts.)
5.9L	13.5 L (14.3 qts.)

Automatic Transmission

Dry fill capacity. *

42RE	9.1-9.5 L (19–20 pts.)
45RFE	13.33 L (28.0pts.)
46RE	9.1-9.5 L (19–20pts.)

* Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these figures may vary. Refer to Group 21, Transmission for proper fluid fill procedure.

SERVICE PROCEDURES (Continued)

Manual Transmission

NV3500	2.0 L (4.2 pts.)
AX15	3.1 L (6.6 pts.)
*NV1500HD	2.2 L (4.7pts.)

* Include 0.1 L (0.22 pts.) Friction Modifier.

Transfer Case

NP231	1.2 L (2.5 pts.)
NP231-HD	1.2 L (2.5 pts.)
NP242	1.2 L (2.5 pts.)

Front Axle

Model 194	1.4 L (3.0 pts.)
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Rear Axle

8-1/4 in.	2.1 L (4.4 pts.)
9-1/4 in.	2.3 L (4.8 pts.)

Power Steering

Power steering fluid capacities are dependent on engine/chassis options as well as steering gear/cooler options. Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these capacities may vary. Refer to Section 19 of the service manual for proper fill and bleed procedures.

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SERVICE PROCEDURES

MAINTENANCE SCHEDULES

There are two maintenance schedules that show proper service for the Dakota.

First is Schedule “A”. It lists all the scheduled maintenance to be performed under “normal” operating conditions.

Second is Schedule “B”. It is a schedule for vehicles that are operated under the conditions listed at the beginning of that schedule.

Use the schedule that best describes the driving conditions.

Where time and mileage are listed, follow the interval that occurs first.

At Each Stop For Gasoline

- Check engine oil level, add as required.
- Check windshield washer solvent and add if required.
- Clean windshield and wiper blades as required.

Once A Month

- Check tire pressure and look for unusual wear or damage.
- Inspect battery and clean and tighten terminals as required.
- Check fluid levels of coolant reservoir, power steering and transmission and add as needed.
- Check all lights and all other electrical items for correct operation.
- Inspect and clean wiper blades. Replace if required.

At Each Oil Change

- Inspect exhaust system.
- Inspect brake hoses.
- Rotate the tires at each oil change interval shown on Schedule “A”: (7,500 miles) or every other interval shown on Schedule “B” (6,000 miles).
- Check engine coolant level, hoses, and clamps.

EMISSION CONTROL SYSTEM MAINTENANCE

The scheduled emission maintenance listed in **bold type** on the Maintenance Schedules, must be done at the mileage specified to assure the continued proper functioning of the emission control system. These, and all other maintenance services included in this manual, should be done to provide the best vehicle performance and reliability. More frequent maintenance may be needed for vehicles in severe operating conditions such as dusty areas and very short trip driving.

FLUID FILL LOCATIONS AND LUBRICATION POINTS

The fluid fill/check locations and lubrication points are located in each applicable group.

SCHEDULE “A”

7,500 Miles (12 000 km) or at 6 months

- Change engine oil.
- Replace engine oil filter.

15,000 Miles (24 000 km) or at 12 months

- Change engine oil.
- Replace engine oil filter.

22,500 Miles (36 000 km) or at 18 months

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Inspect front wheel bearings.
- Inspect brake linings.

30,000 Miles (48 000 km) or at 24 months

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace spark plugs.**
- Drain and refill automatic transmission fluid and change filter (4.7L only).

SERVICE PROCEDURES (Continued)

37,500 Miles (60 000 km) or at 30 months

- Change engine oil.
- Replace engine oil filter.
- Drain and refill transfer case fluid.
- Drain and refill automatic transmission fluid.

Replace filter and adjust bands (3.9L, and 5.9L only).

45,000 Miles (72 000 km) or at 36 months

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Inspect front wheel bearings.
- Inspect brake linings.
- Flush and replace engine coolant at 36 months, regardless of mileage.

52,500 Miles (84 000 km) or at 42 months

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant if not done at 36 months.

60,000 Miles (96 000 km) or at 48 months

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace ignition cables (2.5L, 3.9L, 5.9L).**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- **Replace spark plugs.**
- Inspect auto tension drive belt and replace if required (3.9L, & 5.9L).
- Inspect and adjust tension on drive belt (2.5L).
- Drain and refill automatic transmission fluid and change filter (4.7L only).

67,500 Miles (108 000 km) or at 54 months

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Inspect front wheel bearings.
- Inspect brake linings.

75,000 Miles (120 000 km) or at 60 months

- Change engine oil.
 - Replace engine oil filter.
 - Drain and refill automatic transmission fluid.
- Replace filter and adjust bands (3.9L & 5.9L).
- Drain and refill transfer case.
 - Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.
 - Inspect auto tension drive belt and replace if required (3.9L, & 5.9L).

82,500 Miles (132 000 km) or at 66 months

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.

90,000 Miles (144 000 km) or at 72 months

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- **Replace spark plugs.**
- Lubricate front suspension ball joints if required.
- Inspect front wheel bearings.
- Inspect brake linings.
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ

97,500 Miles (156 000 km) or at 78 months

- Change engine oil.
- Replace engine oil filter.

105,000 Miles (168 000 km) or at 84 months

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant if it has been 30,000 Miles (48 000km) or 24 months since last change.
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ

112,500 Miles (181 000 km) or at 90 months

- Change engine oil.
 - Replace engine oil filter.
 - Drain and refill automatic transmission fluid.
- Replace filter and adjust bands (3.9L & 5.9L only).
- Drain and refill transfer case fluid.
 - Lubricate front suspension ball joints if required.
 - Inspect front wheel bearings.
 - Inspect brake linings.
 - Flush and replace engine coolant if it has been 30,000 Miles (48 000km) or 24 months since last change.

120,000 Miles (192 000 km) or at 96 months

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace ignition cables (2.5L, 3.9L & 5.9L).**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- **Replace spark plugs.**

SERVICE PROCEDURES (Continued)

- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ

- Drain and refill automatic transmission fluid and change filter (4.7L only).

*This maintenance is recommended by Daimler-Chrysler Corporation to the owner but is not required to maintain the warranty on the PCV valve.

ΔThis maintenance is not required if the belt was previously replaced.

Important: Inspection and service should also be performed any time a malfunction is observed or suspected.

SCHEDULE "B"

Use schedule "B" if the vehicle is usually operated under the following conditions:

- Frequent short trip driving less than 5 miles (8 km)
- Frequent driving in dusty conditions
- Trailer towing
- Extensive idling
- More than 50% of the driving is at sustained high speeds during hot weather, above 90°F (32°C)

3,000 Miles (5 000 km)

- Change engine oil.
- Replace engine oil filter.

6,000 Miles (10 000 km)

- Change engine oil.
- Replace engine oil filter.

9,000 Miles (14 000 km)

- Change engine oil.
- Replace engine oil filter.

12,000 Miles (19 000 km)

- Change engine oil.
- Replace engine oil filter.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
 - Drain and refill automatic transmission fluid and change filter (4.7L only).
 - Lubricate front suspension ball joints if required.
 - Change rear axle fluid.
 - Change front axle fluid (4x4).
 - Inspect brake linings.

15,000 Miles (24 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Inspect engine air cleaner element, replace as necessary.**

18,000 Miles (29 000 km)

- Change engine oil.
- Replace engine oil filter.
- Drain and refill manual transmission fluid (3.9L only).

21,000 Miles (34 000 km)

- Change engine oil.
- Replace engine oil filter.
- Inspect front wheel bearings.

24,000 Miles (38 000 km)

- Change engine oil.
- Replace engine oil filter.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
 - Drain and refill automatic transmission fluid and change filter (4.7L only).
 - Lubricate front suspension ball joints if required.
 - Change rear axle fluid.
 - Change front axle fluid (4x4).
 - Inspect brake linings.

27,000 miles (43 000 km)

- Change engine oil.
- Replace engine oil filter.

30,000 Miles (48 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace spark plugs.**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L and 5.9L)***
 - Inspect and adjust drive tension on drive belt (2.5L).

33,000 Miles (53,000 km)

- Change engine oil.
- Replace engine oil filter.

36,000 Miles (58 000 km)

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
 - Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
 - Drain and refill automatic transmission fluid and change filter (4.7L only).
 - Drain and refill transfer case fluid.
 - Change rear axle fluid.
 - Change front axle fluid (4x4).
 - Inspect brake linings.

SERVICE PROCEDURES (Continued)

39,000 Miles (62 000 km)

- Change engine oil.
- Replace engine oil filter.

42,000 Miles (67 000 km)

- Change engine oil.
- Replace engine oil filter.
- Inspect front wheel bearings.

45,000 Miles (72 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Inspect engine air cleaner element, replace as necessary.**

48,000 Miles (77 000 km)

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.

51,000 Miles (82 000 km)

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant.

54,000 Miles (86 000 km)

- Change engine oil.
- Replace engine oil filter.
- Drain and refill manual transmission fluid (3.9L only).

57,000 Miles (91 000 km)

- Change engine oil.
- Replace engine oil filter.

60,000 Miles (96 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace ignition cables.**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- **Replace spark plugs.**
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Lubricate front suspension ball joints if required.

- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.
- Inspect auto tension drive belt and replace if required (3.9L & 5.9L).

63,000 Miles (101 000 km)

- Change engine oil.
- Replace engine oil filter.
- Inspect front wheel bearings.

66,000 Miles (106,000 km)

- Change engine oil.
- Replace engine oil filter.

69,000 Miles (110 000 km)

- Change engine oil.
- Replace engine oil filter.

72,000 Miles (115 000 km)

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Drain and refill transfer case fluid.
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.

75,000 Miles (120 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Inspect engine air cleaner element, replace as necessary.**
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L & 5.9L).Δ

78,000 Miles (125 000 km)

- Change engine oil.
- Replace engine oil filter.

81,000 Miles (130 000 km)

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) since last change.

84,000 Miles (134 000 km)

- Change engine oil.
- Replace engine oil filter.
- Inspect front wheel bearings.
- Lubricate front suspension ball joints if required.

SERVICE PROCEDURES (Continued)

- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.

87,000 Miles (139 000 km)

- Change engine oil.
- Replace engine oil filter.

90,000 Miles (144 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace spark plugs.**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ
- Inspect and adjust tension on drive belt (2.5L).

93,000 Miles (149 000 km)

- Change engine oil.
- Replace engine oil filter.

96,000 Miles (154 000 km)

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.

99,000 Miles (158 000 km)

- Change engine oil
- Replace engine oil filter.

102,000 Miles (163 000 km)

- Change engine oil.
- Replace engine oil filter.

105,000 Miles (168 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Inspect engine air cleaner element, replace as necessary.**
- Inspect front wheel bearings.
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ

108,000 Miles (173 000 km)

- Change engine oil.
- Replace engine oil filter.
- Lubricate front suspension ball joints if required.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Drain and refill transfer case fluid.
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.

111,000 Miles (178 000 km)

- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) since last change.

114,000 Miles (182 000 km)

- Change engine oil.
- Replace engine oil filter.

117,000 Miles (187 000 km)

- Change engine oil.
- Replace engine oil filter.

120,000 Miles (192 000 km)

- Change engine oil.
- Replace engine oil filter.
- **Replace engine air cleaner element.**
- **Replace ignition cables.**
- **Inspect PCV valve, replace as necessary. (3.9L, 4.7L, and 5.9L)***
- **Replace spark plugs.**
- Lubricate front suspension ball joints if required.
- Drain and refill automatic transmission fluid. Replace filter and adjust bands (3.9L & 5.9L).‡
- Drain and refill automatic transmission fluid and change filter (4.7L only).
- Change rear axle fluid.
- Change front axle fluid (4x4).
- Inspect brake linings.
- Inspect auto tension drive belt and replace if required (3.9L, 4.7L, & 5.9L).Δ
- Inspect and adjust tension on drive belt (2.5L).

*This maintenance is recommended by Chrysler Corporation to the customer but is not required to maintain warranty on the PCV valve.

ΔThis maintenance is not required if the belt was previously replaced.

‡Prolonged operation with heavy loading, especially in hot weather, use of vehicle for off-the-high-way operation, and trailer towing require the more

SERVICE PROCEDURES (Continued)

frequent transmission service indicated with a ‡ in Schedule "B". Perform these services if the vehicle is usually operated under these conditions.

Important: Inspection and service should also be performed any time a malfunction is observed or suspected.

JUMP STARTING, TOWING AND HOISTING

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SERVICE PROCEDURES

JUMP STARTING PROCEDURE

WARNING: REVIEW ALL SAFETY PRECAUTIONS AND WARNINGS IN GROUP 8A, BATTERY/STARTING/CHARGING SYSTEMS DIAGNOSTICS. DO NOT JUMP START A FROZEN BATTERY, PERSONAL INJURY CAN RESULT. DO NOT JUMP START WHEN MAINTENANCE FREE BATTERY INDICATOR DOT IS YELLOW OR BRIGHT COLOR. DO NOT JUMP START A VEHICLE WHEN THE BATTERY FLUID IS BELOW THE TOP OF LEAD PLATES. DO NOT ALLOW JUMPER CABLE CLAMPS TO TOUCH EACH OTHER WHEN CONNECTED TO A BOOSTER SOURCE. DO NOT USE OPEN FLAME NEAR BATTERY. REMOVE METALLIC JEWELRY WORN ON HANDS OR WRISTS TO AVOID INJURY BY ACCIDENTAL ARCING OF BATTERY CURRENT. WHEN USING A HIGH OUTPUT BOOSTING DEVICE, DO NOT ALLOW BATTERY VOLTAGE TO EXCEED 16 VOLTS. REFER TO INSTRUCTIONS PROVIDED WITH DEVICE BEING USED.

CAUTION: When using another vehicle as a booster, do not allow vehicles to touch. Electrical systems can be damaged on either vehicle.

TO JUMP START A DISABLED VEHICLE:

(1) Raise hood on disabled vehicle and visually inspect engine compartment for:

- Battery cable clamp condition, clean if necessary.
- Frozen battery.
- Yellow or bright color test indicator, if equipped.
- Low battery fluid level.
- Generator drive belt condition and tension.
- Fuel fumes or leakage, correct if necessary.

CAUTION: If the cause of starting problem on disabled vehicle is severe, damage to booster vehicle charging system can result.

(2) When using another vehicle as a booster source, park the booster vehicle within cable reach. Turn off all accessories, set the parking brake, place the automatic transmission in PARK or the manual transmission in NEUTRAL and turn the ignition OFF.

(3) On disabled vehicle, place gear selector in park or neutral and set park brake. Turn off all accessories.

(4) Connect jumper cables to booster battery. RED clamp to positive terminal (+). BLACK clamp to negative terminal (-). DO NOT allow clamps at opposite end of cables to touch, electrical arc will result. Review all warnings in this procedure.

(5) On disabled vehicle, connect RED jumper cable clamp to positive (+) terminal. Connect BLACK jumper cable clamp to engine ground as close to the ground cable attaching point as possible (Fig. 1).

(6) Start the engine in the vehicle which has the booster battery, let the engine idle a few minutes, then start the engine in the vehicle with the discharged battery.

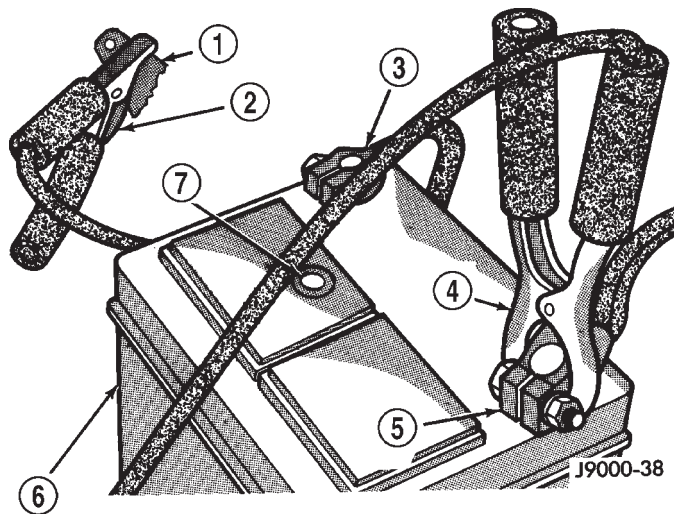
CAUTION: Do not crank starter motor on disabled vehicle for more than 15 seconds, starter will overheat and could fail.

(7) Allow battery in disabled vehicle to charge to at least 12.4 volts (75% charge) before attempting to start engine. If engine does not start within 15 seconds, stop cranking engine and allow starter to cool (15 min.), before cranking again.

DISCONNECT CABLE CLAMPS AS FOLLOWS:

- Disconnect BLACK cable clamp from engine ground on disabled vehicle.
- When using a Booster vehicle, disconnect BLACK cable clamp from battery negative terminal. Disconnect RED cable clamp from battery positive terminal.
- Disconnect RED cable clamp from battery positive terminal on disabled vehicle.

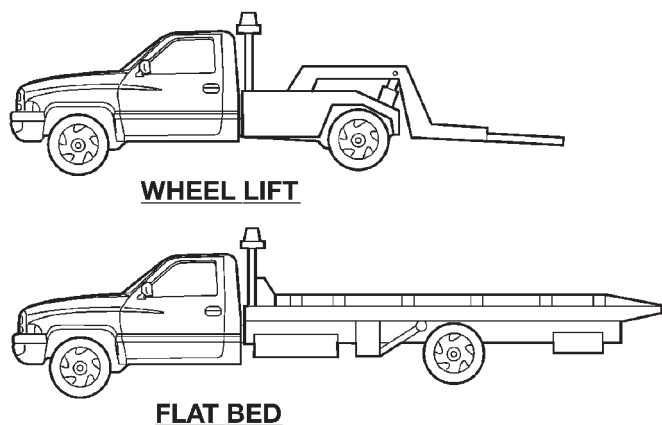
SERVICE PROCEDURES (Continued)

**Fig. 1 Jumper Cable Clamp Connections**

- 1 - ENGINE GROUND
- 2 - NEGATIVE JUMPER CABLE
- 3 - BATTERY NEGATIVE CABLE
- 4 - POSITIVE JUMPER CABLE
- 5 - BATTERY POSITIVE CABLE
- 6 - BATTERY
- 7 - TEST INDICATOR

TOWING RECOMMENDATIONS

A vehicle equipped with an SAE approved Wheel-lift towing device can be used to tow all **Short Bed DAKOTA** vehicles. Long Bed vehicles must be towed with a Flat-bed device (Fig. 2). When towing a 4WD vehicle, use tow dollies under the opposite end of the vehicle.

**Fig. 2 Tow Vehicles With Approved Equipment****SAFETY PRECAUTIONS**

NOTE: The following safety precautions must be observed when towing a vehicle.

- Secure loose and protruding parts.
- Always use a safety chain system that is independent of the lifting and towing equipment.
- Do not allow towing equipment to contact the disabled vehicle's fuel tank.
- Do not allow anyone under the disabled vehicle while it is lifted by the towing device.
- Do not allow passengers to ride in a vehicle being towed.
- Always observe state and local laws regarding towing regulations.
- Do not tow a vehicle in a manner that could jeopardize the safety of the operator, pedestrians or other motorists.
- Do not attach tow chains, T-hooks, or J-hooks to a bumper, steering linkage, drive shafts or a non-reinforced frame hole.
- Do not tow a heavily loaded vehicle. Damage to the cab, cargo box or frame may result. Use a flat bed device to transport a loaded vehicle.

GROUND CLEARANCE

CAUTION: If vehicle is towed with wheels removed, install lug nuts to retain brake drums.

A towed vehicle should be raised until lifted wheels are a minimum 100 mm (4 in) from the ground. Be sure there is adequate ground clearance at the opposite end of the vehicle, especially when towing over rough terrain or steep rises in the road. If necessary, remove the wheels from the lifted end of the vehicle and lower the vehicle closer to the ground, to increase the ground clearance at the opposite end of the vehicle. Install lug nuts on wheel attaching studs to retain brake drums.

RAMP ANGLE

If a vehicle with flat bed towing equipment is used, the approach ramp angle should not exceed 15 degrees.

TOWING WHEN KEYS ARE NOT AVAILABLE

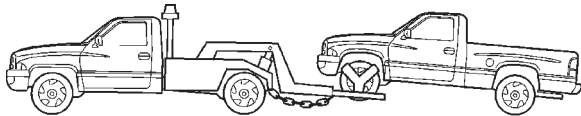
When the vehicle is locked and keys are not available, use a flat bed hauler. A Sling-type device can be used on 4WD vehicles provided **all the wheels are lifted off the ground using tow dollies**.

SERVICE PROCEDURES (Continued)

TWO WHEEL DRIVE VEHICLE TOWING

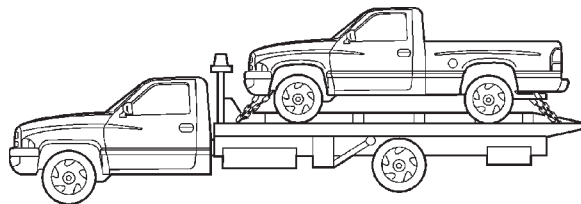
TOWING-REAR END LIFTED

CAUTION: Short bed vehicles must be towed with a Wheel-lift device (Fig. 3) or transported on a flat bed (Fig. 4). Long bed vehicles must be transported on a flat bed.



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Fig. 3 Short Bed Vehicle Towing—Typical



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Fig. 4 Long Bed Vehicle Towing—Typical

2WD vehicles can be towed with the front wheels on the surface for extended distances at speeds not exceeding 48 km/h (30 mph).

- (1) Attach wheel lift device to rear wheels.
- (2) Attach safety chains to frame rails. Route chains so not to interfere with tail pipe when vehicle is lifted.
- (3) Turn the ignition switch to the OFF position to unlock the steering wheel.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

- (4) Secure steering wheel in straight ahead position with a clamp device designed for towing.
- (5) Verify that steering components are in good condition.
- (6) Shift the transmission to NEUTRAL.

TOWING-FRONT END LIFTED

When lifting from the front end, all vehicles must be towed with a Wheel-lift device or transported on a flat bed.

- (1) Attach Wheel-lift device to front wheels.
- (2) Attach the safety chains to the disabled vehicle at the frame rails.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

- (3) Turn the ignition switch to the OFF position to unlock the steering wheel.

TWO WHEEL DRIVE—MANUAL AND AUTOMATIC TRANSMISSION

Provided the transmission is operable, tow only in **NEUTRAL** at speeds not to exceed 30 mph (50 km/h) and distances less than 15 miles (25km/h).

If the vehicle is to be towed more than 15 miles, the propeller shaft should be disconnected or place tow dollies under rear wheels.

FOUR-WHEEL-DRIVE VEHICLE TOWING

FOUR WHEEL DRIVE TOWING—REAR END LIFTED

CAUTION: Short bed vehicles must be towed with a Wheel-lift device (Fig. 3) or transported on a flat bed. Long bed vehicles must be transported on a flat bed (Fig. 4). When using a Wheel-lift device, all wheels must be lifted off the ground using tow dollies.

- (1) Raise the front of the vehicle off the ground and install tow dollies under front wheels.
- (2) Attach wheel lift device to rear wheels.
- (3) Attach safety chains to frame rails. Route chains so not to interfere with tail pipe when vehicle is lifted.
- (4) Turn the ignition switch to the OFF position to unlock the steering wheel.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

- (5) Secure steering wheel in straight ahead position with a clamp device designed for towing.
- (6) Shift the transfer case to NEUTRAL.

FOUR WHEEL DRIVE TOWING—FRONT END LIFTED

When lifting from the front end, all vehicles must be towed with a wheel-lift device or transported on a flat bed.

- (1) Raise the rear of the vehicle off the ground and install tow dollies under rear wheels.
- (2) Attach wheel lift device to front wheels.
- (3) Attach the safety chains to the disabled vehicle at the frame rails.

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

SERVICE PROCEDURES (Continued)

(4) Turn the ignition switch to the OFF position to unlock the steering wheel.

(5) Shift the transfer case to NEUTRAL.

HOISTING RECOMMENDATIONS

FLOOR JACK

When properly positioned, a floor jack can be used to lift a Dakota vehicle (Fig. 5). Support the vehicle in the raised position with jack stands at the front and rear ends of the frame rails.

CAUTION: Do not attempt to lift a vehicle with a floor jack positioned under:

- An axle tube.
- Aluminum differential.
- A body side sill.
- A steering linkage component.
- A drive shaft.
- The engine or transmission oil pan.
- The fuel tank.
- A front suspension arm.

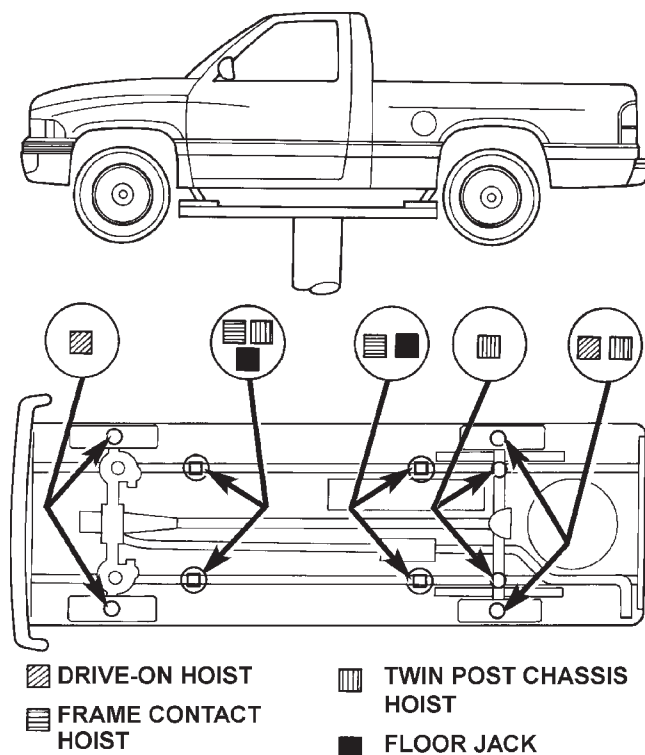
HOIST

A vehicle can be lifted with:

- A single-post, frame-contact hoist.
- A twin-post, chassis hoist.
- A ramp-type, drive-on hoist.

NOTE: When a frame-contact type hoist is used, verify that the lifting pads are positioned properly (Fig. 5).

CAUTION: DO NOT LET THE REAR WHEELS/AXLE HANG UNSUPPORTED WHEN THE VEHICLE IS LIFTED WITH THE PARKING BRAKE APPLIED.



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Fig. 5 Correct Vehicle Lifting Locations—Typical

WARNING: THE HOISTING AND JACK LIFTING POINTS PROVIDED ARE FOR A COMPLETE VEHICLE. WHEN A CHASSIS OR DRIVETRAIN COMPONENT IS REMOVED FROM A VEHICLE, THE CENTER OF GRAVITY IS ALTERED MAKING SOME HOISTING CONDITIONS UNSTABLE. PROPERLY SUPPORT OR SECURE VEHICLE TO HOISTING DEVICE WHEN THESE CONDITIONS EXIST.

